

WE CLAIM:

1. A combined cooling tower and sound attenuating apparatus, said combination comprising:

a cooling tower system including a tower structure, a fan unit mounted in said tower structure and arranged to circulate an airflow through said tower system for exit through an opening located in a top of said tower structure, and a liquid circulation system mounted in said tower structure and capable of circulating a liquid in said tower system so that liquid can be cooled by said air flow;

an attenuator housing having a vertically extending wall portion, a top cover, and a bottom, said housing being mounted on said top of said tower structure and having an air inlet formed in said bottom and arranged and aligned to receive said air flow from said opening, said housing further having an air outlet formed in said vertically extending wall portion;

perforated interior walls mounted in said housing and defining an airflow passage that extends from said air inlet to said air outlet, said interior walls including inner and outer annular wall sections extending around a substantially vertical central axis, said inner wall section extending generally upwardly and outwardly from said air inlet; and

sound absorbing material arranged behind said perforated interior walls on sides thereof opposite said airflow passage.

2. A combination according to claim 1 wherein said inner annular wall section is substantially conical in shape and diverges upwardly and outwardly about its circumference.

3. A combination according to claim 2 wherein said fan unit

comprises an axial fan rotatable about a substantially vertical axis and said fan unit is located adjacent said top of the tower structure and wherein said air flow enters said tower system through one or more tower inlets located in one or more sides of said tower system.

4. A combination according to claim 2 including a sound reducing resonator located at said air inlet and extending about the circumference of said air inlet.

5. A combination according to claim 2 wherein said sound absorbing material is compressed fiberglass batting.

6. A combination according to claim 2 wherein said outer annular wall section is substantially cylindrical and extends upwardly to said air outlet, which extends about a horizontal perimeter of said housing.

7. A combined condenser unit and sound attenuating apparatus, said combination comprising:

a condenser system including a condenser housing forming an airflow passageway and an air outlet opening located in a top of said housing, a fan unit mounted in said housing and arranged to circulate an airflow through said housing for exit through said outlet opening, and a fluid circulation system capable of circulating a heat exchanging fluid in said condenser system so that said fluid can be cooled by said airflow;

an attenuator housing having a vertically extending wall portion, a top cover, and a bottom end, said attenuator housing being mounted on top of said condenser system and having an air inlet formed in said bottom end and arranged to receive said airflow from said outlet opening, said attenuator housing having an attenuator air outlet formed

in said vertically extending wall portion;

perforated interior walls mounted in said attenuator housing and defining an airflow passage that extends from said air inlet to said attenuator air outlet, said interior walls including inner and outer annular wall sections extending around a substantially vertical central axis, said inner wall section extending generally upwardly and outwardly relative to said central axis; and

sound absorbing material arranged behind said perforated interior walls on sides thereof opposite said airflow passage.

8. A combination according to claim 7 wherein inner annular wall section is substantially conical in shape and diverges upwardly and outwardly about its circumference.

9. A combination according to claim 8 wherein said fan unit comprises an axial fan rotatable about a substantially vertical axis and said fan unit is located in a top section of the condenser housing and wherein said airflow enters said condenser housing through one or more openings located in a bottom of said condenser housing.

10. A combination according to claim 9 wherein said attenuator air outlet extends horizontally along at least two vertically extending sides of the attenuator housing.

11. A combination according to claim 7 wherein said top cover extends over a top end of said attenuator housing and prevents any of said airflow from passing upwardly through said top end.